

• L 12907-63

ACCESSION NR: AP3001322

0

of incidence. 2) The transmission coefficient decreases as the fraction of the grating occupied by metal increases. 3) The diffracted waves of the first three positive orders and the first negative order have the greatest influence on the intensity of the directly transmitted beam. 4) As the angle of incidence increases, the influence of higher order diffracted waves on the intensity of the directly transmitted beam decreases. 5) Diffracted waves of odd order affect the intensity of the transmitted beam more strongly than do those of even order. The calculations were tested by the transmission of three different gratings (without dielectric backing) to microwaves of two different wavelengths at angles of incidence ranging up to 45° . [Abstractor's note: Neither the wavelengths used nor the dimension of the apparatus are given.] Agreement within about 5% was obtained. The calculations were performed by expanding the solutions to the wave equation in a trigonometric series in the two coordinates concerned. Application of the boundary conditions leads to equations in the form of infinite series that still contain one of the coordinates. Eliminating this coordinate is not an elementary matter because of singularities; it was accomplished by a method described elsewhere (Z.S. Agranovich, V.A. Matchenko, V.P. Shestopalov, ZhTF, 32, 4, 1962). The result of the elimination is an infinite series from which the expansion coefficients can be obtained to any required degree of accuracy by retaining only the leading terms. The numerical computations were performed on a computer. Orig. art. has: 57 formulas and 7

Card 2/32

Karkov St. Un.

TRET'YAKOV, O.A.; SHESTOPALOV, V.P.

Diffraction of electromagnetic waves on a pair of plane metallic gratings. Zhur. tekhn. fiz. 33 no.10:1232-1243 0 '63.

(MIRA 16:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.

FRET'YAKOV, O.A.; SHESTOPALOV, V.P.

Diffraction of electromagnetic waves on a pair of plane
equiperiodic gratings different-sized gratings. Zhur. tekhn.
fiz. 33 no.10:1244-1251 O '63. (MIRA 16:11)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.

L 26480-65 EWT(1)/EEC(t)/EEC-4/EEC(b)-2/FCS(k) Pac-4/Pae-2/Pi-4/Pj-4/Pl-4

WR
ACCESSION NR: AR5004868

S/0058/64/000/011/H031/H031

SOURCE: Ref. zh. Fizika, Abs. 11Zh196

AUTHORS: Gestrin, G. N.; Maslov, K. V.; Shestopalov, V. P.

TITLE: Diffraction of electromagnetic waves by a plane grating of special shape

CITED SOURCE: Uch. zap. Khar'kovsk. un-t, v. 138, 1964, Zap. Mekhan.-matem. fak. i Khar'kovsk. matem. o-va, v. 30, 164-174

TOPIC TAGS: antenna array, ^{25B}electromagnetic wave diffraction, diffraction grating, plane grating

TRANSLATION: Using a method developed previously (RZhFiz, 1962, 10Zh138), the authors investigate the electromagnetic field produced when a plane wave is normally incident on a periodic grating made up of conducting metallic ribbons of different widths. The ratio of the grating period to the length of the incident wave can vary from zero to several units. The results can be used, in particular, in antenna technology. L. Lutchenko.

SUB CODE: EC, EM

ENCL: 00

Card- 1/1

ACCESSION NR: AP4009942

S/0057/64/034/001/0186/0188

AUTHOR: Provalov, A.V.; Tert'yakov, O.A.; Shestopalov, V.P.

TITLE: Experimental investigation of the diffraction of electromagnetic waves by double metallic gratings

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.1, 1964, 186-188

TOPIC TAGS: diffraction, electromagnetic waves, microwave diffraction, microwave grating, diffraction grating, double grating, double diffraction grating

ABSTRACT: Normal incidence reflection and transmission coefficients of 34 double-metallic diffraction gratings were measured and the results were compared with theoretical calculations previously published by two of the authors (O.A.Tert'yakov and V.P.Shestopalov, ZhTF, 33, 10, 1963). Each double grating consisted of two identical plane gratings so mounted parallel to each other that the plane midway between them was the symmetry plane of the system. The component plane gratings were constructed by fastening copper foil strips to a sheet of polystyrene foam. The ratio of slot width to grating constant was varied from about 0.2 to 0.6; the ratio of the grating constant to the wavelength was varied from 0.6 to 1.6; the ratio of the distance

Card 1/2

ACC.NR: AP4009942

Between the component gratings to the grating constant was varied from 0.25 to 2. The dimensions of the gratings were 19.5 cm x 14.5 cm, but the actual grating spacings and wavelengths employed are not given. Microwaves were normally incident on the gratings with the electric vector parallel to the slots. The radiating and receiving antennas were identical horns having directional pattern widths of about 10° in the E plane and 7° in the H plane. The measured and calculated reflection and transmission coefficients are tabulated. The agreement is satisfactory and thus justifies use of the present experimental techniques in the investigation of more complex structures for which an exact theory is not available. Orig.art.has: 3 figures and 2 tables.

ASSOCIATION: Khar'kovskiy gosuniversitet im.A.M.Gor'kogo (Khar'kov State University)

SUBMITTED: 29Jul63

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: PH

NR REF SOV: 002

OTHER: 000

Card 2/2

L 15063-65 EWT(d)/EWT(l)/EEC(k)-2/EEC-4/EEC(t)/T/EEC(b)-2/EWA(h) Pn-4/Po-4/
Pq-4/Pac-4/Pg-4/Pi-4/Pj-4/Pk-4/Pl-4/PeB SSD/AFWL/ASD(a)-5/RAEM(a)/ESD(gs)/
ESD(t)

ACCESSION NR: AP4045276

8/0057/64/034/009/1649/1659

AUTHOR: Shestopalov, V.P.; Slyusarskiy, V.A.

TITLE: Experimental investigation of the diffraction of electromagnetic waves by
finite plane metallic gratings B
21

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.9, 1964, 1649-1659

TOPIC TAGS: electromagnetic wave diffraction, diffraction grating, microwave dif-
fraction 25

ABSTRACT: The transmission and diffraction of electromagnetic waves by finite
plane metallic gratings were investigated experimentally in order to determine how
large a grating must be in order adequately to approximate an infinite grating. The
waves were generated by a klystron and were radiated and received by horn antennas.
A single wavelength [not specified] was employed in all the measurements. The grat-
ings were constructed by fastening strips of copper foil to a plastic support. The
authors characterize a grating by the number n of strips it contains, its period L ,
the width D of a slot, the parameter $u = \cos(\pi D/L)$, and the ratio $x = L/\lambda$ of the
period to the wavelength employed. In all of the measurements the waves were inci-

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L 15063-65

ACCESSION NR: AP4045276

2

dent normally onto the grating with the electric vector parallel to the slots. Direct transmission measurements were made for the values 0, ± 0.4 , ± 0.9 of u , for values of x ranging from 0.4 to 3.0, and for values of n between 1 and 43. The results are presented graphically in the form of 70 curves showing the experimental points. Measurements were also made of the angular distribution of the diffracted radiation (still with normal incidence). These results are presented graphically by means of 27 curves on which, however, the experimental points are not shown. From their results the authors conclude that the edge effects due to the finite size of the grating can be neglected provided the ratio of the width of the grating to the width of the antenna directional pattern at the -20 db level is not less than 0.8, and that qualitative features of the angular distribution of the diffracted waves begin to appear for values of n as small as 3 to 7. The experimental results for large values of n were in adequate agreement with the calculations of Z.S.Agranovich, V.A.Marchenko and V.P.Shestopalov (ZhTF 32, No.4, 1962). "The authors thank comrades V.M.Ushakov and Ye.L.Pirotti for essential aid in performing the work." Orig. art.has: 3 formulas, 8 figures and 1 table.

2/3

L 15063-65

ACCESSION NR: AP4045276

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University)

SUBMITTED: 09Dec63

ENCL: 00

SUB CODE: EC

NR REF SOV: 005

OTHER: 003

3/3

L 18847-65 EWT(d)/EWT(1)/EEC(k)-2/EEC-4/EEC(t)/EEC(b)-2 Pn-4/Pg-4/Pt-10/Pl-4
 RAEM(c)/ASD(a)-5/AFMD(t)/RAEM(a)/AFWL/AFETR/SSD/ESD(c)/ESD(gs)/ESD(t) WS
 ACCESSION NR: AP4049034 S/0057/64/034/011/1950/1961

AUTHOR: Agranovich, Z.S.; Shestopalov, V.P.

TITLE: Propagation of electromagnetic waves in an annular waveguide

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.11, 1964, 1950-1961

TOPIC TAGS: electromagnetic wave, electromagnetic wave diffraction, waveguide, waveguide slot, waveguide diffraction, waveguide loss, wave propagation

ABSTRACT: The dispersion equation is derived for the propagation of electromagnetic waves in a system consisting of an infinite number of perfectly conducting thin-walled coaxial circular cylinders of radius A and length $L - D$ separated by gaps of length D . The calculation is performed in cylindrical coordinates r, ϕ, z with the z -axis coinciding with the axis of the system. In accordance with Floquet's theorem, the complex electric and magnetic fields are each expressed as the product of a Fourier series in z and an exponential function of z . The coefficients are determined separately for $r > A$ and $r < A$, so that Maxwell's equations are satisfied and only damped or outgoing waves are present in the region $r > A$. The effect of the boundary conditions at $r = A$ was calculated by a method previously

L 18847-65

ACCESSION NR: AP4049034

3

described by the authors in collaboration with V.A.Marchenko (ZhTF 32,4,1962). Results of the earlier paper are merely quoted. This leads to a dispersion equation in the form of an infinite series, only the first term of which is retained. The resulting approximate dispersion equation was solved numerically with the aid of a computer for E-waves and H-waves, and the results are presented graphically. As the gap increases, the wavelength of the E-waves approaches its free space value the more rapidly, the longer the wavelength. As the gap decreases, the wavelength does not at once tend toward its value for a continuous waveguide, but begins to do so only after the gap becomes very small. The H-waves, on the other hand, do not exhibit this behavior. Under all conditions the H-waves are less strongly damped than the E-waves. The H-waves are only very slightly damped when the gaps are narrow, but the damping increases rapidly with gap width for sufficiently wide gaps. The width of the gap is more important for H-wave damping than the number of gaps per wavelength. "In conclusion we express our deep gratitude to V.A. Marchenko for his creative participation in the discussion of this work. We are also very grateful to L.I.Litvinenko and S.S.Tret'yakova for the great labor they performed in completing the numerical computations." Orig.art.has: 61 formulas and 7 figures.

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L 18847-65

ACCESSION NR: AP4049034

2

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im.A.M.Gor'kogo (Khar'kov State University); Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vy*chislitel'noy tekhniki (Khar'kov Institute of Mining Machinery Construction, Automation and Computer Engineering)

SUBMITTED: 06Feb64

ENCL: 00

SUB CODE: EM

NR REF SOV: 002

OTHER: 001

3/3

L 18846-65 EWT(d)/EWT(1)/EEC(k)-2/EEC-4/EEC(t)/EEC(b)-2 Pn-4/Pg-4/Pt-10/Pl-4
AFWL/SSD(c)/RAEM(a)/SSD/ASD(a)-5/RAEM(c)/RAEM(j)/ESD(ga)/ESD(t) WS

ACCESSION NR: AP4049035

S/0057/64/034/011/1962/1970

AUTHOR: Gestrin, G.N.; Litvinenko, L.N.; Maslov, K.V.; Shestopalov, V.P. B

TITLE: Diffraction and ¹propagation of electromagnetic waves in plane and cylindrical periodic structures of special geometric form. 1. q

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.11, 1964, 1962-1970

TOPIC TAGS: electromagnetic wave diffraction, diffraction grating, polarization filter

ABSTRACT: The authors calculate the diffraction of plane electromagnetic waves by a plane periodic structure consisting of perfectly conducting bands of alternate widths separated by equal gaps, as shown in Fig.1 of the Enclosure. This problem has been previously solved for normal incidence (G.N.Gestrin, K.V.Maslov, V.P.Shestopalov, Uch.zap.Khar'kovsk.gos.univ.i Khar'kovsk.matem.obshch.30,1963; L.N.Litvinenko, Izv.VUZov, Radiofizika, 7,6,1964) by methods described by Z.S.Agranovich, V.A.Marchenko and V.P.Shestopalov (ZhTF 32, No.4, 1962). In the present paper this calculation is generalized, with the aid of more recent methods of A.I.Adonina and V.P.Shestopalov (ZhTF 33, No.6, 1963), to the case of oblique incidence with the propaga-

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L 18846-65

ACCESSION NR: AP4049035

tion vector perpendicular to the x-axis (see Fig.1). The results of the cited papers are quoted at critical stages of the calculation, which, accordingly, cannot readily be followed without reference to them. The calculation of the transmission coefficient is reduced in the end to the solution of an infinite set of linear equations. These were approximated by eleven of them, and the approximate set was solved numerically with the aid of a computer. The results are presented graphically, separately for E-polarization (electric vector parallel to the x-axis) and H-polarization. The inclusion of narrow conducting bands between the wider ones was found to influence the diffraction of E-polarized waves much more than that of H-polarized waves. Gratings of the type discussed, therefore, may find application as polarization filters. It is also possible to achieve considerable saving of metal in the construction of a diffraction grating with specified transmission for E-polarized waves by employing alternate bands of different width. Orig.art.has: 37 formulas and 7 figures.

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L 18846-65

ACCESSION NR: AP4049035

ASSOCIATION: Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki, i vy*chi-
slitel'noy tekhniki (Khar'kov Institute of Mining Machinery Construction, Automa-
tion and Computer Engineering); Khar'kovskiy gosudarstvenny*y universitet im.A.M.
Gor'kogo (Khar'kov State University); FTI nizkikh temperatur AN UkrSSR (Low Tempera-
ture Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 06Feb64

ENCL: 01

SUB CODE: EM, OP

NR REF SOV: 004

OTHER: 000

3/4

L 18846-65

ACCESSION NR: AP4049035

ENCLOSURE: 01

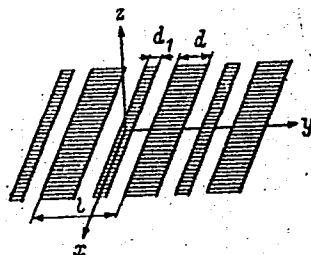


Figure 1. Diffraction grating.

Card 4/4

L 18845-65 EWT(d)/EWT(1)/EEC(k)-2/EEC-4/EEC(t)/EEC(b)-2 Pn-4/Pg-4/Pt-10/
Pl-4 SSD/RAEM(a)/ASD(a)-5/AFETR/AFWL/ESD(c)/ESD(gs)/ESD(t) WS

ACCESSION NR: AP4049036

S/0057/64/034/011/1971/1978

AUTHOR: Gestrin, G.N.; Litvinenko, L.N.; Maslov, K.V.; Shestopalov, V.P.

TITLE: Diffraction and propagation of electromagnetic waves in plane and cylindrical periodic structures of special geometric form. 2. B

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.11, 1964, 1971-1978

TOPIC TAGS: waveguide, waveguide slot, waveguide diffraction, waveguide loss, wave propagation

ABSTRACT: The authors employ the method of equivalent boundary conditions discussed by V.A. Marchenko (Matemat. sbornik 63,4,105,1964) to derive dispersion equations for annular waveguides and helical waveguides of special form, as illustrated in Fig.1 of the Enclosure. These dispersion equations are valid only when the free-space wavelength is small compared with the radius of the waveguide. The appropriate equivalent boundary conditions are derived with the aid of the solution to the related plane diffraction problem treated by the authors in paper 1 of the present series (ZhTF 34,1962,1964; see Abstract AP4049035). The dispersion equation for the annular waveguide (but not that for the helical waveguide) was solved numerically.

L 18845-65
ACCESSION NR: AP4049036

for E_{01} and H_{01} modes by Newton's method, and the results are presented graphically and compared with analogous results for the simple ring waveguide obtained by A.S.Agranovich and V.P.Shestopalov (ZhTF 34.1950,1964;see Abstract AP4049034). The behavior of the special annular waveguide is in general similar to that of the simple ring waveguide. The presence of a narrow ring within the gap, however, greatly reduces the attenuation of the H_{01} wave, while affecting that of the E_{01} wave only slightly, and it reduces the width of the high attenuation band and shifts its position toward the higher frequencies. This last effect may find technical application. Orig.art.has: 22 formulas and 7 figures.

ASSOCIATION: Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vy*chislitel'noy tekhniki (Khar'kov Institute of Mining Machinery Construction, Automation and Computer Engineering); FTI nizkikh temperatur AN UkrSSR(Low Temperature Physicotechnical Institute, AN UkrSSR); Khar'kovskiy gosudarstvennyy universitet im. A.M.Gor'kogo (Khar'kov State University)

SUBMITTED: 06Feb64

ENCL: 01

SUB CODE: EM

NR REF SOV: 007

OTHER: 000

2/3

L 18845-65
ACCESSION NR: AP4049036

ENCLOSURE:01

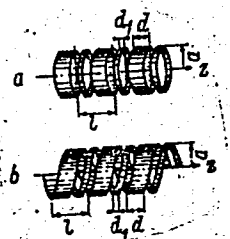


Figure 1. Waveguides of special geometric form. a - Ring waveguide, b - helical waveguide.

Card 3/3

PROVALOV, A.V.; TRET'YAKOV, O.A.; SHESTOPALOV, V.P.

Experimental study of the diffraction of electromagnetic waves on
double metal gratings. Zhur. tekhn. fiz. 39 no.1:186-188 Ja '64.
(MIRA 17:1)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.

JITENKO, Aleksey Grigor'yevich; SHESTOPALOV, V.P., prof., div.
red.: YAKIMENKO, L.I., red.

[Electromagnetic fluctuations in a plasma] Elektromagnitnye
fluktuatsii v plazme. Khar'kov, Izd-vo Khar'kovskogo univ..
1966. 184 p. (MIRA 18:5)

L 6350-66 EWT(1) GG

ACC NR: AP5020368

SOURCE CODE: UR/0141/65/008/003/0552/0560

AUTHOR: ^{44, 55} Tret'yakova, S. S.; ^{44, 55} Tret'yakov, O. A.; ^{44, 55} Shestopalov, V. P. 44
B

ORG: ^{44, 55} Kharkov Institute of Mining Machinery, Automation and Computer Engineering
(Kar'kovskiy institut gornogo mashinostroyeniya avtomatiki i vychislitel'noy
tekhniki)

TITLE: The investigation of ^{21, 44, 55} electromagnetic waves by an electron beam moving inside
a ring waveguide

SOURCE: IVUZ. Radiofizika, v. 8, no. 3, 1965, 552-560

TOPIC TAGS: phase recording, phase shift analysis, electromagnetic wave phenomenon,
waveguide propagation, waveguide transmission, cylindric wave harmonic analysis

ABSTRACT: An exact solution is obtained for the problem of electromagnetic wave ra-
diation that is produced during the movement of a monochromatic electron beam inside
a ring waveguide. The waveguide consists of an infinite periodic sequence of iden-
tical metallic cylinders with a electron beam moving along the axis. In the analy-
sis a cylindrical system of coordinates is taken and it is assumed that the electron

Card 1/3

UDC: 621.372.8.09

0902 010.

L 6350-66

ACC NR: AP5020368

the waveguide is in phase. An expression is derived for the radiation energy when the first harmonic is negative. Orig. art. has: 36 formulas and 1 figure.

SUB CODE: EC,GP/ SUBM DATE: 09May64/ ORIG REF: 006/ OTH REF: 003

NW

Card 3/3

L 00845-66 INT(1)/EEG-1/EMA(h)
ACCESSION NR: AP5015810

UR/0109/65/010/006/1043/1056
621.372.822

AUTHOR: Shestopalov, V. P.; Shcherbak, V. V.

TITLE: Inhomogeneities in rectangular waveguides. Capacitive obstacles

SOURCE: Radiotekhnika i elektronika, v. 10, no. 6, 1965, 1043-1056

TOPIC TAGS: rectangular waveguide

ABSTRACT: The Riemann-Gilbert method developed for solving metal-grating diffraction problems is used for investigating the inhomogeneities in a rectangular waveguide. The problem of diffraction of $H_{p,0}$ -modes by various metal-strip capacitive obstacles is reduced to an infinite set of linear algebraic equations with unknown amplitudes of the natural modes arising at the obstacles. For a finite number of the natural modes, the infinite set of equations becomes a finite set; the general form of the additional terms is known which permits calculations with a specified accuracy. It is proven that a waveguide obstacle with any distribution of strips and windows is equivalent to a periodic grating whose strips and slots in its period are distributed according to the given obstacle and its image. Numerical values of the reflection (or transmission)

Card 1/2

L 00845-66
ACCESSION NR: AP5015810

factors, equivalent admittance and conversion loss were calculated on a computer for various capacitive obstacles as functions of frequency system parameters. Orig.art. has: 7 figures and 44 formulas.

ASSOCIATION: Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vychislitel'noy tekhniki (Khar'kov Institute of Mining-Machine Construction, Automatics, and Computer Engineering)

SUBMITTED: 09Apr64

NO REF SOV: 005

ENCL: 00

OTHER: 001

SUB CODE: EC

Card 2/2

ACC NR: AR7000893

vectors on the slot between the turns of the strip), results in an infinite system of linear, homogeneous algebraic equations. A dispersion equation is derived by equating the determinant of this system to zero. The presence in the terms of the determinant of factors tending to zero with an increase in the ordinal number of the term makes it possible to limit the consideration of the determinant to a determinant of a finite order. A modification of the dispersion equation for the case of space resonance is cited. [Translation of abstract] [DW]

SUB CODE: 20, 09/

Card 2/2

ACC NR: AR7000888

SOURCE CODE: UR/0058/66/000/009/H025/H026

AUTHOR: Chernyakov, E. I.; Trel'yakov, O. A.; Shestopalov, V. P.

TITLE: Theory of the Vavilov-Cherenkov effect for the motion of electron fluxes above a complex interface

SOURCE: Ref. zh. Fizika, Abs. 9Zh190

REF SOURCE: Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb., vyp. 1, 1965, 142-148

TOPIC TAGS: electron flux, electromagnetic wave, Vavilov Cherenkov effect, vacuum dielectric boundary, electromagnetic wave radiation

ABSTRACT: The problem of electromagnetic wave radiation by a plane monochromatic electron flux moving above an infinitely long ribbon grid placed on the vacuum-dielectric interface is investigated. It is shown the infinite system of equations determining radiation field partial wave amplitudes can be reduced of a system which may be conveniently solved numerically by a computer. General conclusions are obtained on radiation field frequency, which is determined by the

Card 1/2

ACC NR: AR7000888

modulation frequency of the beam, and on the radiation direction which forms a discrete spectrum analogous to a diffraction spectrum. N. Khizhnyak. [Translation of abstract] [DW]

SUB CODE: 20/

Card 2/2

LITVINENKO, I.N.; SHESTOPALOV, V.P.

Diffraction characteristics of two-element nonsymmetrical metal
grids. Radiotekh. i elektron. 10 no.6:1131-1134 Je '65.

(MIRA 18:6)

1. Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i
vyshislitel'noy tekhniki.

L 1171-66 EWT(1)/EWA(h)

ACCESSION NR: AP5017657

UR/0109/65/010/007/1202/1213
621.372.822.2

AUTHOR: Shestopalov, V. P.; Shcherbak, V. V.

TITLE: Inhomogeneities in rectangular waveguides. Inductive obstacles

SOURCE: Radiotekhnika i elektronika, v. 10, no. ²⁵7, 1965, 1202-1213

TOPIC TAGS: rectangular waveguide

ABSTRACT: A theoretical investigation is presented of inductive obstacles (such as a single strip, a diaphragm, several strips, symmetrical or unsymmetrical) in rectangular waveguides. This is a continuation of the authors' work on capacitive strip obstacles (Rad. i elektronika, 1965, 10, 6, 1043) where the Riemann-Gilbert method was used. Equations are set up for determining the coefficients of transmission and reflection and the amplitudes of waves of diffraction spectra when an H_{po} -mode falls on the above inductive obstacles. The

equivalence of inductive obstacles to a strip lattice of a suitable configuration is demonstrated. Numerical calculations show that the symmetrical strip is shunting the waveguide to the highest and the symmetrical septum to the lowest degree. The results may be extended over any mode falling on an inductive obstacle. Orig. art. has: 5 figures and 43 formulas.

Card 1/2

L 1171-66

ACCESSION NR: AP5017657

ASSOCIATION: none

SUBMITTED: 09Apr64

ENCL: 00

SUB CODE: EC

NO REF SOV: 005

OTHER: 002

Card

2/2

DP

L 3827-66 EWT(1) GG

ACCESSION NR: AP5017659

UR/0109/65/010/007/1233/1243

539.124.175

AUTHOR: Tret'yakov, O. A.; Tret'yakova, S. S.; Shestopalov, V. P.

TITLE: Radiation of electromagnetic waves by a beam of electrons traveling over a diffraction grating [Reported at the 3rd All-Union Symposium on Wave Diffraction, Tbilisi, Sep 64]

SOURCE: Radiotekhnika i elektronika, v. 10, no. 7, 1965, 1233-1243

TOPIC TAGS: electromagnetic wave generation

ABSTRACT: A rigorous solution is offered of the problem of electromagnetic waves generated by an idealized unbounded flat monochromatic beam of electrons traveling, at a constant speed, over a diffraction grating; the latter consists of infinitely thin metal strips of arbitrary width. As the beam represents a periodically charged plane, the unknown radiation is conveniently described by a Fourier series. By specifying exact boundary conditions for the field, Fourier coefficients are determined. The resulting boundary electrodynamic problem is reduced to a Riemann-Gilbert problem. The latter's solution yields an infinite

Card 1/2

L 3827-66

ACCESSION NR: AP5017659

24
system of linear algebraic equations for the Fourier coefficients (radiation spectrum), which is very convenient for handling by computer. The results permit determining the electromagnetic field at any point, with a specified accuracy, for any relation between the wavelength, grating period, and strip width. General formulas for the electromagnetic field can be used for determining the connection between the wavelength and the direction of radiation. "The authors wish to thank F. G. Bass, V. I. Gayduk, S. P. Kapitsa, K. I. Krylov, M. I. Kuznetsov, G. Ya. Levin, A. S. Tager, and A. M. Kharchenko for a useful discussion." Orig. art. has: 3 figures and 50 formulas.

ASSOCIATION: none

SUBMITTED: 31Jul64

ENCL: 00

SUB CODE: EM

NO REF SOV: 003

OTHER: 003

Card 2/2

... from a plane-parallel layer by means of
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(MIRA 18 4

L 15275-66 EWT(1)/EWP(1) IJP(c) AT

ACC NR: AP5028293

SOURCE CODE: UR/0022/65/018/005/0090/0096

AUTHOR: Bareganyan, V. A.; Tret'yakov, O. A.; Chernyakov, E. I.; Shestopalov, V. P. ⁵⁴₅₃

ORG: Yerevan State University (Yerevanskiy gosudarstvennyy universitet); Kharkov Institute of Mining Machine Building, Automation and Computing Technology (Khar'kovskiy institut gornogo mashinostroyeniya, avtomatika i vychislitel'noy tekhniki)

TITLE: Radiation from a stream of electrons moving parallel to a metal grid located on the edge of a uniaxial crystal of finite thickness ^{21,44,55}

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 5, 1965, 90-96

TOPIC TAGS: particle physics, electron radiation, dielectric material, electron beam

ABSTRACT: The authors give a strict solution for the problem of radiation from a beam of electrons moving above the surface of an anisotropic dielectric of finite thickness with a grating. It is assumed that a grid made up of metal bands is applied to one of the surfaces of a plane-parallel layer of anisotropic dielectric

Card 1/2

2

L 15275-66

ACC NR: AP5028293

material (a uniaxial crystal) with a given permeability. A formula is derived in the form of a Fourier series for the proper electromagnetic field of the electron beam. Conditions are determined under which radiation takes place in the crystal and in free space. Orig. art. has: 22 formulas.

SUB CODE: 20/ SUBM DATE: 15Feb65/ ORIG REF: 004/ OTH REF: 001

PC
Card 2/2

L 11756-66 EWT(1) GG
ACC NR: AP6011919

SOURCE CODE: UR/0141/66/009/002/0341/0350

AUTHOR: Tret'yakov, O. A.; Chernyakov, E. I.; Shestopalov, V. P. 39
B

ORG: Khar'kov Institute of Mining-Machine Construction, Automatics, and Computer Engineering (Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vychislitel'noy tekhniki)

TITLE: Theory of the Smith-Purcell effect

SOURCE: IVUZ. Radiofizika, v. 9, no. 2, 1966, 341-350

TOPIC TAGS: electromagnetic wave, electromagnetic wave generation, diffraction grating, electromagnetic radiation, reflector diffraction grating, electron beam

ABSTRACT: Previous authors' works (e.g., Zh.T.F., v. 36, 34, 1966) established a strong dependence of the intensity of electromagnetic-wave radiation on the width of metal strips that form the grating. The present article investigates the electro- magnetic-wave radiation by a modulated electron beam traveling over a reflecting diffraction grating. The radiation energy characteristics of this grating are compared to those of a strip-type grating and a grating formed by rectangular-cross-

Card 1/2

UDC: 621.371.167

L 41756-66

ACC NR: AP6011919

section bars. The effect of the grating profile on radiation is analyzed. Optimal parameters of the beam and the grating are determined for the case when the effects of the space charge and reaction (influence of radiation on the beam) are neglected. It is found that: (1) With a specified current, the electron beam must be as thin as possible and must be kept as close to the grating as possible; (2) The diffraction-grating profile has an important bearing on the radiated power and the directional pattern; (3) The radiation caused by a nonmodulated electron beam is noncoherent; the degree of coherence can be controlled by modulation. Orig. art. has: 6 figures and 36 formulas.

SUB CODE: 20, 09 / SUBM DATE: 30Jun65 / ORIG REF: 008 / OTH REF: 004

Card 2/2 *96*

L 21720-65 EWT(1) LJP(c) GG/AT
ACC NR: APG00487

SOURCE CODE: UR/0057/66/036/001/0033/0038

AUTHOR: Tret'yakov, O.A.; Chernyakov, E.I.; Shestopalov, V.P.

ORG: Khar'kov Institute of Mining Machine Construction, Automation, and Computing Technology (Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vychislitel'noy tekhniki)

TITLE: Radiation of electromagnetic waves by an electron sheet moving above a diffraction grating

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 1, 1966, 33-38

TOPIC TAGS: diffraction grating, electron beam, electromagnetic radiation, electromagnetic wave diffraction

ABSTRACT: The authors discuss the radiation of an infinite plane sheet of electrons moving at constant velocity parallel to a plane diffraction grating. The grating is assumed to consist of an infinite sequence of infinitely long rods of rectangular section with their axes in the x-y plane and parallel to the x axis of a rectangular Cartesian coordinate system xyz. The dimensions of the rods are assumed to be $2(L - d)$ in the y-direction and $2h$ in the z direction, and the rods are assumed to be separated by the distance $2d$, so that the grating constant is L . The electrons are assumed to move in the plane $z = p$ with constant velocity in the y direction, and the density of the sheet is assumed to be proportion to $\exp[i(ky - \omega t)]$, where i is the imaginary

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UDC: 538.561

L 21720-66

ACC NR: APG004875

unit, k and f are constants, and t is the time. The wave radiated by the electron sheet is diffracted by the grating. The diffracted wave is expanded in a series of partial waves and an infinite set of linear equations is derived for the expansion coefficients. These equations were solved with the aid of a computer for different values of the grating parameters, Poynting's vector was calculated for the case that only a single diffracted wave is radiated approximately normally to the grating, and the results are presented graphically. The calculations were checked by comparison with those of Z.S.Agranovich, V.A.Marchenko, and V.P.Shestopalov (ZhTF, 32, 381, 1962) for the case $h = 0$. It is shown that the maximum power is radiated when L/d is approximately 5, that resonant increase of the radiated power occurs when $2h$ is a multiple of half the wavelength, and that the radiated power increases rapidly with decreasing distance between the electron sheet and the grating. Orig. art. has: 20 formulas and 4 figures.

SUB CODE: 20/

SUBM DATE: 03Mar65/

ORIG REF: 003/

OTH REF: 003

Card 2/2

ACC NR: AP6018997

SOURCE CODE: UR/0109/66/011/006/1066/1075

AUTHOR: Shestopalov, V. P.; Shcherbak, V. V.

ORG: none

TITLE: Inhomogeneities in rectangular waveguides²⁵. Double strip obstacles

SOURCE: Radiotekhnika i elektronika, v. 11, no. 6, 1966, 1066-1075

TOPIC TAGS: rectangular waveguide, waveguide diffraction, waveguide iris

ABSTRACT: The problem of mode diffraction by a single-layer metal-strip obstacle was solved by the authors earlier (Rad. i Elektronika, 1966, v. 11, no. 4, 675). The present article extends the above problem over the case of two-layer ("double") arbitrary strip obstacles placed in a waveguide with a spacing between them. Equations are set up (and solved by the Riemann-Gilbert method for a particular case) describing the diffraction of $E_{p,l}^y$ and $TE_{p,l}^y$ modes by the obstacles. The modes are assumed to be polarized in a direction parallel to the slots in the obstacles. A particular case of two single-slot asymmetrical irises is treated numerically. Orig. art. has: 6 figures and 22 formulas.

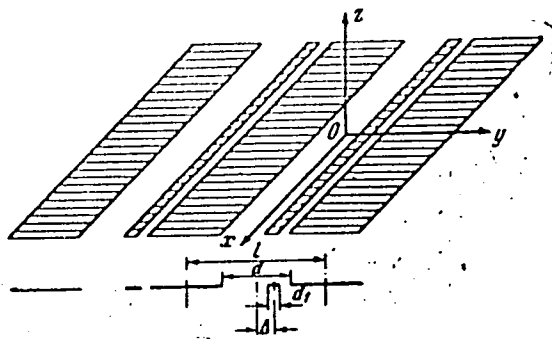
SUB CODE: 09 / SUBM DATE: 12Feb65 / ORIG REF: 004

Cord 1/1

UDC: 621.372.822

ACC NR: AT6034340

Fig. 1.



$$\begin{aligned} E_x^1 &= e^{-ikz} + \sum_{n=-\infty}^{\infty} a_n e^{i\gamma_n x} e^{i\pi n y/l} \quad (z > 0), \\ E_x^2 &= \sum_{n=-\infty}^{\infty} b_n e^{-i\gamma_n x} e^{i\pi n y/l} \quad (z < 0), \end{aligned} \quad (2)$$

where

$$\gamma_n = \sqrt{k^2 - \left(\frac{2\pi n}{l}\right)^2}, \quad k = \frac{2\pi}{\lambda} \quad (3)$$

To calculate the coefficients a_n and b_n a Riemann-Hilbert problem is arrived at, leading to a set of functional relations of the type

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ACC NR: AT6034340

$$R_{\alpha}^{(-1)} = \sum_{m \neq 0} (-1)^m \frac{R_{m-1}}{m}, \quad \tilde{R}_{\alpha}^{(-1)} = \sum_{m \neq 0} \frac{R_{m-1}}{m} e^{im\alpha}$$

$$V_{\alpha}^n = \sum_{m \neq 0} (-1)^m \frac{V_m^n}{m}, \quad W_{\alpha}^n = \sum_{m \neq 0} \frac{V_m^n}{m} e^{im\alpha}$$

A similar set of functions is obtained for the case of oblique incidence where the electric field equations are

$$E_x^{(1)} = e^{-ik(y \sin \alpha + z \cos \alpha)} + \sum_{n=-\infty}^{\infty} \bar{a}_n \exp(i\bar{\gamma}_n z) \exp(i\bar{h}_n y) \quad (z > 0)$$

$$E_x^{(2)} = \sum_{n=-\infty}^{\infty} \bar{b}_n \exp(-i\bar{\gamma}_n z) \exp(i\bar{h}_n y) \quad (z < 0) \quad (6)$$

$$\bar{h}_n = -k \sin \alpha + \frac{2\pi n}{l}, \quad \bar{\gamma}_n = \sqrt{k^2 - \left(\frac{2\pi}{l}\right)^2 (n - \alpha \sin \alpha)^2}$$

Each of the functions in equation (5) is evaluated separately where amplitudes of the harmonics with symmetric indices are unequal ($b_n \neq b_{-n}$). It is shown that the solution of the finite set given above ($N = n > 0$) exists and is unique. Orig. art. has: 45 equations and 3 figures.

SUB CODE: 20/ SUBM DATE: 10Oct64/ ORIG REF: 008

Card 4/4

KUZ'MINOV, F.M.; SHESTOPALOV, V.T.

Improve fire-prevention measures for various enterprises of the capital. Gor. khoz. Mosk. 34 no.10:30-31 O '60. (MIRA 13:10)

1. Upravleniye pozharnoy okhrany Moskvy.
(Moscow--Fires and fire prevention)

SHESTOPALOV, V.V.; KAFAROV, V.V.; BLYUKHMAN, L.I.

Longitudinal mixing in packed columns. Khim. prom. no.5:
367-371 My '63. (MIRA 16:2)

SHRESTHALOV, V.V.; IVANOVA, N.I.

Calculating the operative capacity of industrial filter centri-
fuges on the basis of laboratory data. Khim. prom. 40 no.3:618-
619 Ag '64. (MIRA 13:4)

KAPRANOV, V.V.; SHCHETKIN, V.V.

Influence of the longitudinal stirring of the liquid on the
mass transfer process in a packed column. Zhur. prikl. khim.
37 no.11/12:161-166 N 1964 (U.S.S.R. 1964)

76-1-11/32

AUTHORS: Kuznetsov, A. N., Snestopalova A. A.,
Kulish, N. F.

TITLE: The Kinetics and the Mechanism of the Reduction of Cobalt
Oxides (O kinetike i mekhanizme vosstanovleniya oksidov
kobal'ta).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp. 73-78
(USSR)

ABSTRACT: The authors refer to the fact that the oxygen compounds of
cobalt were insufficiently investigated hitherto and the
reduction processes of cobalt oxides were apparently not
investigated at all. Examples of kinetic differential curves
of the process of a reduction of Co_3O_4 by hydrogen at
various temperatures are given. The authors show that cobalt
oxides can be reduced more easily by means of hydrogen than
by the corresponding iron oxides. This, moreover, is possible
at a lower temperature: Fe_2O_3 is practically not reduced
by hydrogen below 250°C while Co_3O_4 can even be reduced
with a velocity well measurable at 195°C . The reduction of
 Co_3O_4 at the respective temperatures takes place in two

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The Kinetics and the Mechanism of the Reduction of Cobalt Oxides 76-1-11/52

stages. G. I. Chufarov and collaborators showed in ref. 3 that Co_3O_4 is reduced in two stages: $\text{Co}_3\text{O}_4 \rightarrow \text{CoO}$ and $\text{CoO} \rightarrow \text{Co}$. The authors state that this takes place only above 300°C where Co_3O_4 is reduced in 2 and correspondingly $\text{Co}_3\text{O}_4\cdot\text{O}_y$ in 3 stages. Subsequently it appears, that in the case of the reduction of cobalt oxides, there exists a temperature limit, at the surpassing of which the Co phase (which is accumulated in the phase just being reduced) becomes stable. The characteristics of the reduction of $\text{Co}_3\text{O}_4\cdot\text{O}_y$ at above 300°C will be given in the next work. - In the first stage of the reduction of $\text{Co}_3\text{O}_4\cdot\text{O}_y$ no autocatalytic development of the process takes place, the induction period is lacking. The reaction of the reduction begins with a maximum velocity which gradually decreases and reaches a minimum at the transformation point of the corresponding phases. In the 2nd stage the reduction process shows a clearly marked autocatalytic character. At lower temperatures of 195 to 200°C autocatalysis is less clearly marked than at higher

Card 2/4

The Kinetics and the Mechanism of the Reduction of Cobalt Oxides 76-1-11/32

temperatures (271-296°C). At above 230°C in the second stage immediately after the autocatalytic range the velocity of the process is about half the value of the initial velocity of the $\text{Co}_3\text{O}_4 \cdot 0.0_y$ reduction. In the range from 200-230°C, however, the velocity of the process increases in the second stage to the double of the initial velocity of the $\text{Co}_3\text{O}_4 \cdot 0_y$ reduction.

The apparent activation energy of the process

$\text{Co}_3\text{O}_4 + 4\text{H}_2 \rightarrow 3\text{Co} + 4\text{H}_2\text{O}$ was 17,8 kcal. The experimental data speak convincingly in favor of the fact that the process of the reduction of cobalt oxides shows great similarity with that of the reduction of iron oxides. The authors are of opinion that in both cases the characteristics of the kinetic regularities are connected with the crystal-chemical transformation of the reducing solid phases, with the peculiar reaction - diffusion of elementary particles of crystalline lattices of reduced oxides. A scheme for the process in the reduction of the $\text{Co}_3\text{O}_4 \cdot 0_y$ -phase is given. According to the author's opinion the experimental data can be well explained

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The Kinetics and the Mechanism of the Reduction of Cobalt Oxides 76-1-11/32

by means of this scheme.

There are 4 figures, and 5 references, 5 of which are Slavic.

ASSOCIATION: Chemical-Technological Institute, Dnepropetrovsk
(Dnepropetrovskiy khimiko-tekhnologicheskii institut).

SUBMITTED: October 1, 1956

AVAILABLE: Library of Congress

Card 4/4

PROKOPENKO, L.I.; SHESTOPALOVA, A.Ye.

Improvement of malaria control in Altai Territory based on epidemiological analysis of morbidity data. Med.paraz. i paraz. bol.24 no.3:211-217 J1-S '55. (MLRA 8:12)

1. Iz otdeleniya epidemiologii i organizatsii bor'by s malyariyey i drugimi parazitarnymi boleznyami Instituta malyarii, meditsinskoy parazitologii i gel'mintologii Ministerstva zdravookhraneniya SSSR (dir.instituta-prof. P.G.Sergiyev, zav.otdeleniyem-dotsent M.G.Rashina) i parazitologicheskogo otdela Altayskoy krayevoy sanitarno-epidemiologicheskoy stantsii.

(MALARIA, prevention and control,
in Russia)

YAKIMKIN • N.A.; SHESTOPALOVA, I.M.

Studying ceramic properties of montmorillonites from some deposits
of Lvov Province and Transcarpathia, the Ukrainian S.S.R. Bent. gliny
(MIRA 12:12)
Ukr. no.1:104-110 '55.

1.L'vovskiy filial TSentral'nogo nauchno-issledovat'skogo instituta
stroymaterialov Ministerstva promyshlennosti stroitel'nykh materialov.
(Lvov Province--Montmorillonite)
(Transcarpathia--Montmorillonite)

SHOSTAKOVA, I.M.; SHI, D.V.

Ceramic products on a base of clay from new deposits in Transcarpathia. Stroim. mat., det. i izd no. 2:115-123 '65
(MIRA 19:1)

1. L'vovskiy filial Gosudarstvennogo nauchno-issledovatel'skogo instituta stroitel'nykh materialov i izdeliy.

L 2327-66 ÉWA(k)/FBD/EWT(1)/BEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c) WG
ACCESSION NR: AP5023362 UR/0020/65/164/001/0078/0079
AUTHOR: Zargar'yants, M. N.⁴⁴; Kiselev, A. A.⁴⁴; Kropotova, O. D.⁴⁴
Kurbatov, L. N.⁴⁴; Lyustrov, Yu. M.⁴⁴; Sigriyanskiy, V. V.⁴⁴; Taubkin, I. I.⁴⁴
Shestopalova, I. P.⁴⁴
TITLE: A continuous GaAs injection laser cooled by a flow of gaseous
helium
SOURCE: AM SSSR. Doklady, v. 164, no. 1, 1965, 78-79
TOPIC TAGS: laser, injection laser, gallium arsenide, gallium arse-
nide laser, laser pumping
ABSTRACT: A continuously operating GaAs junction laser cooled by a
flow of helium vapor is described. A GaAs laser was mounted on a
triangular base. The p-n junction was formed by vapor diffusion of
zinc into a wafer of GaAs doped with Te oriented in the (111) plane.
The junction area was 0.34 x 0.4 mm. The cavity was formed by cleav-
ing. The experimental device used to obtain continuous emission is
shown in Fig. 1 of the Enclosure. The major element in the device
was a cryostat consisting of a double-wall silvered glass tube with
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ACCESSION NR: AP5023362

the air pumped out from the space between the walls. One end of the tube and a heating element were lowered into the helium dewar. The diode at the other end of the tube was cooled by the flow of the helium gas. The advantage of the cooling system was that the diode's thermal regime depended primarily on the thermal characteristics of the helium gas and on the GaAs. When the laser was placed in the liquid helium and operated in the pulsed regime at a repetition rate of 50 pulses per second and at a pulse duration of 7 μ sec, the threshold current density was 1300 amp/cm². Under the same conditions the threshold current density of the laser cooled to ~30K by a flow of helium gas was 230 amp/cm². The laser was also operated continuously at temperatures between 25 and 35K. At ~30K the threshold current density for continuous operation was 360 amp/cm². (The output power was not given for any of the operating regimes). Orig. art. has: 1 formula and 1 figure. [CS]

ASSOCIATION: none

SUBMITTED: 12Feb65

ENCL: 01

SUB CODE: EC

NO REF SOV: 000
Card 2/3

OTHER: 004

ATD PRESS: 4107

L 2327-66
ACCESSION NR: AP5023362

ENCLOSURE: 01
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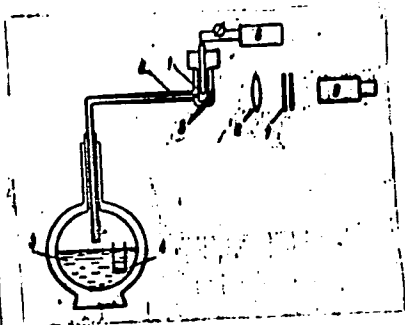


Fig. 1. The experimental setup for continuous operation of the GaAs laser

- 1 - GaAs diode; 2 - cryostat;
- 3 - liquid helium; 4 - heating element; 5 - windows; 6 - lens;
- 7 - Fabry-Perot interferometer;
- 8 - battery; 9 - image converter.

Card 3/3

Beh

BARDA-PLANT, M.D., KISHIN, V.I., KROPOTOVA, G.I., KUMAROV, I.N.,
LYUBILOV, G.I., POKHODKIN, V.I., TALAKIN, I.I., SHESTOPALOVA,
I.I.

Continuous operation of a GaAs injection laser cooled by a
flow of gaseous helium. Dokl. AN SSSR 164 no.1378-79 S 165.
(MIRA 18:9)

1. Submitted February 26, 1966.

SHESTOPALOVA, L.A.

✓ 3612

ABOUT $0 \rightarrow 0$ TRANSITION IN RaC'. B. S. Dzhelepov, and L. A. Shestopalova (Mendeleev All Union Research Inst. of Metrology). Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 20, 933-40 (1956) Aug. (In Russian)

The half-width band of 4.7% instead of the normally expected 2.6% has been revealed in the investigation RaC' electron recoil spectra at 1350 to 1450 kev level. This lead to the assumption of the presence of a group of lines among which the component 1378 kev was already known from previous works, the other lines were in energies near 1410 kev. Conversion coefficients on the K shell in various multiple transitions from $h\nu = 1416$ kev produced the values of 1385.3, 1396.5, 1401.7, 1408.0, and 1438.0 kev which form the above mentioned electron surplus. Three types of decay schemes are shown for the RaC' lower level of excitations. Analysis was made of four types of electron discharge at the 1416 kev level to determine the theory of $0 \rightarrow 0$ transitions. (R.V.J.)

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SHESTOPALOVA, M.I.

Release of baby food mixtures from the pharmacy. Pharmacy.
zhur. 16 no.1:74-75 '61. (MIRA 1798)

1. Upravlyayushchiy aptekoy No.34, s. Verkhniy Rogachik
Khersonskoy oblasti.

EYDEL'MAN, Z.M.; LITVINENKO, A.I.; SHESTOPALOVA, N.G.

Physiological study of heterosis in corn. Trudy Bot.
inst.Ser. 4 no.13:312-328 '59. (MIRA 13:3)
(Corn breeding) (Heterosis)

Source: [illegible]

"The [illegible] [illegible] [illegible]," [illegible], [illegible], No. 7, 1967.

SINISCHAL, N. D.

"The Problem of the Structure of Smooth Muscular Tissue," Dok. AN, 18, No. 6, 1949.
Moscow Med. Inst., Min. Public Health RSFSR, -cl:46-.

SHESTOPALOVA, N.M.

Modifications in the cutaneous structure of the growing
embryo in ultraviolet irradiation of the mother. Usp.
sovrem. biol. 30 no.1:145-152 July-Aug. 1950. (CML 20:1)

1. Moscow.

SHESTOPALOVA, N.M.

Regeneration of intramural plexi nerve cells in mammals [with
summary in English]. Biul.eksp.biol. i med. 43 no.3:90-95 Mr '57.
(MLRA 10:7)

1. Iz laboratorii rosta i razvitiya (zav. - prof. M.A.Vorontsova)
Instituta eksperimental'noy biologii (dir. - prof. I.N.Mayskiy)
AMN SSSR, Moskva. Predstavlena akademikom A.D.Speranskim.
(GASTROINTESTINAL SYSTEM, innervation
Auerbach's & Meissner's plexi regen. in rats (Rus))

SHESTOPALOVA, N.M. (Moskva)

Regeneration of axons of the central nervous system and division
of neurons in mammals. Usp.sovr.biol. 45 no.3:349-365 My-Je '58
(MIRA 11:8)

(CENTRAL NERVOUS SYSTEM, physiology,
 regen. of axons & division of neurons, review (Rus))
(NEURONS,
 regen. of axons & division of neurons in CNS, review (Rus))

SHESTOPALOVA, N.M.; AVAKYAN, A.A.; REYNGOL'D, V.N.; TKAL', V.V.

Electron microscope study of the plastic processes of intestinal epithelium of various mammals. Arkh.anat.gist.i embr. 38 no.3:34-44 Mr '60. (MIRA 14:5)

1. Laboratoriya elektronnoy mikroskopii (zav. - doktor med. A.A. Avakyan) Instituta po izucheniyu poliomielifita.
(DUODENUM)

SHESTOPALOVA, N.M.

Reparative regeneration in the intestinal wall of the rat following experimental injury. Biul.MOIP. Otd.biol. 65 no.3:141-142
My-Je '60. (MIRA 13:7)
(REGENERATION (BIOLOGY) (INTESTINES)

SHESTOPALOVA, N.M.; REYNGOL'D, V.N.

Electron microscope study of the structure of intestinal epithelium
in Triton taeniatus. Biol. MOIP. Otd. biol. 65 no.5:128-129 3-0 '60.

(MIRA 13:12)

(INTESTINES)

(NEWTS)

(ELECTRON MICROSCOPY)

SHESTOPALOVA, N.M.; AVAKYAN, A.A.; REUNGOL'D, V.N.

Comparative electron microscopy of the structure of the duodenal
epithelium of mammals and amphibians. TSitologiya 3 no. 2:125-136
Mr-Apr '61. (MIRA 14:4)

1. Laboratoriya elektronnoy mikroskopii Instituta po izucheniyu
poliomyelita AMN SSSR, Moskva.
(EPITHELIUM) (ELECTRON MICROSCOPY)

PAVLOVA, I.B.; SHESTOPALOVA, N.E.; RYNGOLD, V.N.

Electron microscope study of the structure of the smooth muscle
tissue of the intestinal wall in Triton. Arkh. anat. gist. i embr.
40 no.6:64-70 Je '61.- (MIRA 15:2)

1. Laboratoriya elektronnoy mikroskopii (zav. - doktor med.nauk
A.A.Avakyan) Instituta po izucheniyu poliomyelita AMN SSSR.
(MUSCLE) (INTESTINES) (BLUTS)

SHESTOPALOVA, N.M.; REYNGOL'D, V.N.; BORISOV, V.M.

Submicroscopic structure of the needlelike crystals of epithelial cells of the intestinal mucous membrane and their place in the endoplasmatic reticulum system. Dokl. AN SSSR 153 no.2:454-456 N '63. (MIRA 16:12)

1. Institut poliomiyelita i virusnykh entsefalitov AMN SSSR.
Predstavleno akademikom A.N.Bakulevym.

✱

SHESTOPALOVA, I.M.; RED'GOLD, V.I.; TIKHOMIROVA, T.I.; KARPOVICH, L.G.;
CHUMAKOV, M.P.

Electron microscope study of chick embryo cell culture infected with Kemerovo virus. Acta virol (Praha) [Engl] 8 no.1: 88-89 Ja'64.

1. Institute of Poliomyelitis and Viral Encephalitides,
U.S.S.R., Academy of Medical Sciences, Moscow.

*

CHURCHMAN, R. T.; CHURCHMAN, V. R.; GRAHAM, V. L.; KANOVICH, L. L.; SOKOL, M. I.

"Electron microscopic study of the morphology of Kemerova virus using the negative staining technique."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

CONFIDENTIAL

"The fine structure of smooth cells in the small intestine of cotton rats."

report submitted for 3rd European Regional Conf, Electron Microscopy, Prague,
29 Aug-3 Sep 64.

CHUMAKOV, M.P.; MUSTAFINA, A.N.; CHUMAKOVA, M.Ya.; KARMYSHEVA, V.Ya.;
SHESTOPALOVA, N.M.; REINGOLD, V.M.

Cultivation of simian virus SV 40 in continuous human diploid
cells. Acta virol. (Praha) [Eng.] 8 no.3:217-224 My'64

1. Institute of Poliomyelitis and Viral Encephalitides, U.S.S.R.
Academy of Medical Sciences, Moscow.

REINGOLD, V.N.; GRACHEV, V.P.; SHESTOPALOVA N.M.

The possibility of quantitative and morphological study of poliovirus (Sabin's strains) with its parallel titration.
Acta virol. (Praha) [Eng.] 8 no.3:225-229 My'64

1. Institute of Poliomyelitis and Viral Encephalitides,
U.S.S.R. Academy of Medical Sciences, Moscow.

CHERNOMALOVA, L.P.; LEVIN, S.D., A.N.; DAVYLOVSKAYA, I.N.; SELVATEVA, A.P.;
KRYUKOV, M.I.

Electron microscopic study of the morphology and localization
of Chik hemorhagic fever virus in cells of the infected tissue
culture. Vop. virus. 10 no.42425-430 31-Ag '65.

(MIRA 18:8)

1. Institut poliomyelita i virusnykh entsefalitov AMN SSSR,
Moskva.

KOPOLIN, N.B.; CHESTOKALOVA, E.M.; CHUMAKOVA, M.Ya.

Electron microscopic study of dividing cells in a transformed
tissue culture. Dokl. AN SSSR 166 no.3:716-718 Ja '66.

(MIRA 19:1)

1. Institut poliomyelita i virusnykh entsefalitov AN SSSR.
Submitted March 30, 1966.

ACC NR: AP6021580

(N)

SOURCE CODE: BR/0402/66/000/003/0348/0352

AUTHOR: Shkol'nik, L. Ya.; Shestopalova, N. M.; Zatulovskiy, B. G.

ORG: Kiev Institute of Epidemiology and Microbiology (Kiyevskiy institut epidemiologii); Institute of Poliomyelitis and Viral Encephalitis Disease, Academy of Medical Sciences, SSSR, (Institut poliomyelita i virusnykh entsefalitov AMN SSSR)
Moscow

TITLE: Rickettsia prowazeki in yolk-sac cells of infected chick embryos

SOURCE: Voprosy virusologii, no. 3, 1966, 348-352

TOPIC TAGS: rickettsia, rickettsia prowazeki, rickettsial structure, electron microscopy, rickettsial disease, cell physiology

ABSTRACT:

Electron microscope studies of *Rickettsia prowazeki* revealed that *Rickettsia* have two envelopes: an exterior one (the cell wall) and an interior one (protoplasmic membrane). Within the rickettsia two kinds of granules appear, the denser variety resembling ribosomes. "Z"-type *Rickettsia* possess vacuole-like protrusions of the cell wall at various stages of detachment from the cell body. Yolk-sac cells infected with *Rickettsia* are marked by destruction of the endoplasmic reticulum, and reduction or absence of mitochondria.

[W.A. 50; -CBE No. 10]

SUB CODE: 06/ SUBM DATE: 26Mar65/ ORIG REF: 007/ OTH REF: 008/

Card 1/1

UDC: 576.851.71.094.537.533.35

SHESTOPALOVA, S. A.

Jul/Aug 53

USSR/Nuclear Physics - Gamma-Spectrometer

"Gamma Spectrometer With Improved Focusing." B. S. Dzhelepov, N. N. Zinkovskiy, A. S. Karamyan and S. A. Shestopalova, All-Union Sci-Res Inst of Metrology; Radium Inst, Acad Sci USSR

Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 518-520

Attempt to improve resolution of gamma spectroscopy described previously by Dzhelepov et al. (DAN 62, 613 (1948); 77,233 (1951)). Because this spectroscopy is based on recoil electrons, author named it "eletron." Indebted to V. Chumik and S. Rasinova. Rec 16 Jul 53.

272T52

SHESTOPALOVA, S. A.

SHESTOPALOVA, S. A. -- "Study of the Spectrum of γ -rays of Radium C by Means of a Magnetic Spectrometer with Improved Focusing (Elotron)." *(Dissertations for Degrees in Science and Engineering Defended at USSR Higher Educational Institutions)
Radium Inst imeni V. G. Khlopinin, Acad Sci USSR, Leningrad, 1955

SO: Knizhnaya Letopis' No. 31, 30 July 1955.

*For the Degree of Candidate in Physicomathematical Sciences.

SHLESTOPALOVA, S. A.

Phys The clotron—a magnetic γ -spectrometer with improved focusing. B. S. Dzhelepov and S. A. Shlestopalova, *Bull. Acad. Sci. U.S.S.R., Phys. Ser.* 20, 102-113 (1956) (English translation).—See C.A. 50, 14985g. B. M. R.

SHESTOPALOVA, S. A.

✓ The ~~electron~~—a magnetic ~~γ-spectrometer~~ with improved focussing. B. S. Dzhelepov and S. A. Shestopalova. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 328-32 (1966). Better focussing is obtained by a curved target and a magnetic field of controlled nonuniformity. Details of construction, parts, and operation are given. The spectrometer and the counters are filled with a mixt. of 165 mm. He and 5 mm. CH₄. S. Pakswer

A-U Sci Res Inst. Metrology in D. I. Mendeleev

Shestopalova, S. A.

19
 The 0 → 0 transition in radium C'. B. S. Dzhelepov and
 S. A. Shestopalova. *Izvest. Akad. Nauk S.S.S.R., Ser.*
~~*Fig. 20, 222-48(1966).*~~ A large line in the recoil electron
 spectrum of Ra C' in the region 1350-1450 is attributed to a
 mixt. of lines 1385.3, 1391.1, 1396.3, 1401.7, 1403.0, and
 - 1438.0 e.kv. No trace of the γ -line 1410 e.kv. was ob-
 served. The quantum characteristics of the 3 levels 1410
 e.kv. (0⁺), 609 (2⁺), ground level (0⁺) are discussed.

S. Pakser

All-Union Sci Res Inst. Metrology im D.I. Mendeleev

*RMS
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SOV/112-59-3-5251

2(13)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1969, No. 3, p. 115 (USSR)
 AUTHOR: Aglintsev, K. K., Balon, Z. P., Dzheludov, B. S., Karavayev, F. M.,
 Karavayev, A. S., Konstantinov, A. A., Ostrom, Zh. Ya., G. P.
 Prokofyev, P. P., Rastvorov, S. A., Sumbayev, O. I., Kholodova, Ye. A.,
 Shestopalova, S. A., Yudin, M. F., and Yarusova, I. A.

TITLE: Metrology of Penetrating Radiations
 (Metrologiya prikladnykh izlucheniy)

PERIODICAL: Vys. Atomn. energiya v mirovnykh tsentrakh Gosenergoinstitut
 1957, pp. 145-181

ABSTRACT: Projects are described of the Vsesoyuznyy nauchno-issledovatel'skiy
 Institut metrologii (All-Union Scientific Research Metrology Institute) imeni
 D. I. Mendeleeva on standardization of measures in the ionizing-radiation
 field, and on the construction of standard and reference outfits for reproducing
 the fundamental units in the whole range of energies and intensities of radiations
 of all types. The following outfits are described: (1) a standard reproducing

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Measurement of a penetrating radiation

the roentgen in the range of 40-300 Kev. (2) a reference outfit for measuring
 in roentgens of electromagnetic radiation doses having the quantum energy of
 300-1,500 Kev. (3) an outfit for measuring in roentgens the electromagnetic
 radiation doses with quantum energy of 3-20 Kev. with an error of 1%, (4) two
 standard outfits for measuring radium gamma equivalents, (5) differential
 lead-ball gamma-calorimeters for measuring the activity of various prepara-
 tions on the basis of their gamma radiation, (6) an isothermal calorimeter
 operating on the principle of liquid nitrogen evaporation for measuring the
 activity of beta preparations, (7) a differential alpha calorimeter for
 measuring the activity of radium preparations. An activity-measurement
 method by counting the number of particles emitted by a preparation is being
 developed in two directions: counting of particles in a definite solid angle and
 the same in the total solid angle by means of "tag" counters. The beta-particle
 counter with a definite angle permits measuring preparations with an activity
 of 10^{-8} - 10^{-5} curie with an error of 4-6%. Two alternate designs of "tag"

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SOV/112-59-3-5251

Metrology of Penetrating Radiations

counters are described. One of them permits measuring beta preparations
 with an activity of 10^{-10} - 5×10^{-9} curie with an error of 2-4%, and the second,
 5×10^{-11} - 5×10^{-7} curie with an error of 1-3%. The outfits have been built for
 measuring electron streams from 10¹⁰ down to a few tens of electrons per sec.
 A gamma-spectrometer, Electron, with an improved focusing has been built for
 investigation of gamma spectra in the energy range of 200-3,000 Kev. To
 conduct investigations in the range of 120-1,000 Kev. a 2-meter long crystal-
 diffraction gamma spectrometer from the Department of Spectroscopy has been built.
 Also, a mag. of a spectrometer with a 4th order reflection has been built
 for the range of 200-500 Kev. Measuring the half-life from a few hours to a
 few years is made by two methods: the method of successive measurements of
 gamma-ray activity preparations and the differential chamber method. The
 results of half-life measurements for a number of isotopes are tabulated.

N. G. Z.

Card 3/3

48-7-13/21

An Investigation of the Spectrum of the γ -Rays of RaC

analyzed for its RaTh content. Figure 2 records the obtained experimental curve of the γ -spectrum of RaC. Then the background of the device was analyzed in detail. For the purpose of determining the relative intensities of the γ -lines the experimental spectrum was subjected to a revision which is fully explained. The obtained results may be seen on figure 3. The spectral sensitivity of the device (figure 4) was obtained on the basis of the measurements of the spectra of Cs¹³⁷, Co⁶⁰ and Na²⁴. Then the separation of the emission electron spectrum into individual components was carried out, the section of from 1820 to 2600 keV being represented on figure 5 and the section of from 2204 to 2450 keV on figure 7. Figure 6 records the experimental curve of the γ -spectrum of RaC for the section 2204 - 2450 keV. Figures 8 and 9 show the separation of the section of the γ -spectrum of RaC in the range of from 1480 to 1820 keV, as well as from 450 to 1480 keV. The relative intensities of the γ -lines of RaC are given in table 1 and illustrated by figure 10. The authors further determined the numbers of quanta for every disintegration, as may be seen from table 2. There are 2 tables, 10 figures and 16 references, 7 of which are Slavic.

Card 2/3

Sh. Shestopalova, S.A.

48-7-14/21

AUTHORS: Uchevatkin, I.F., Shestopalova, S.A.
 TITLE: New Lines in the Spectrum of RaC (O novykh liniyakh v spektre RaC)
 PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 7,
 pp. 1002 - 1003 (USSR)

ABSTRACT: In the article by Dzhelepov and Shestopalova it was pointed out that behind the RaC γ -line of 2450 keV approximately to the energy of 2700 keV a coincidence was observed which surpasses the background and which could not be explained by the influence of a neighbor line. The authors decided to investigate this section of the spectrum on the "elotron" under the conditions of increased light intensity. The cellophane target was replaced by one of beryllium of 330 μ thickness and the slots in front of the counters were enlarged to double of their former height and width (as compared to the standard dimensions). This increased the luminosity 30-fold and decreased the dissolving power 2,2-fold. For the purpose of studying the form of the spectral line of the device under these conditions the γ -lines 2614 keV of ThC" and 2758 keV of Na²⁴ were carefully investigated. In the investigation of the RaC spectrum behind the line 2450 keV a

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BENEDICT, B., BENTOPALOVA, G. AND UCHENATKIN, I.

"In the 240-340 keV Region of the RaC Gamma Spectrum," Nuclear Physics,
Vol. 3, No. 2, Feb 1968. North Holland Publ. Co., Amsterdam.

L.I. Mendel'ev Research Inst. of Metrology, Leningrad.

Abst: Five new RaC γ -lines are reported of higher energy than those known
heretofore.

DZHELEPOV, B. S. and ZHUKOVSKIY, N. N. (V. G. Khlopin Radium Institute, USSR Acad. Sci. Leningrad) SHESTOPALOVA, S. A. and UCHEVATKIN, I. F. (D. I. Mendeleev Research Institute of Metrology, Leningrad.

"Gamma-Ray Spectrum of Radium in Equilibrium with its Decay Products," Nuclear Physics, v. 8, 1 (1958) (North-Holland Publishing Co., Amsterdam) pp. 250-264.

Abstract: Results are described of an investigation of the radium gamma-spectrum in equilibrium with its decay products, based on recoil electron measurements in the energy range 150-2530 keV. Fourth-four gamma-lines have been observed, and their relative intensities and the number of quanta per disintegration determined.

SOV/48-22-7-17/26

AUTHORS: Dachelegov, B. S., Zhukovskiy, N. N., Uchevatkin, I. P.,
Shestopalova, S. A.

TITLE: New Data on the Relative Intensities of the γ -Lines of Ra
in Equilibrium With Its Decay Products (Novyye dannyye ob
otnositel'nykh intensivnostyakh γ -liniy Ra, nakhodyashchegosya
v ravновесии s produktami raspada)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958,
Vol. 22, Nr 7, pp. 841-847 (USSR)

ABSTRACT: In order to examine and precise the data from reference 1
on the relative intensities in the spectrum of the γ -radia-
tion of radium C this spectrum was again investigated in the
"electron" of the Radium Institute (Ref 2). 2 grams of radium
in the compound RaBr_2 served as a source of γ -radiation.
The shape of the source was identical with that one used
in reference 1. The results are as follows: 1) Range from
 ~ 150 to 630 keV: This section of the spectrum up to the line
at 600 keV was investigated for the first time by means of
the recoil electrons. Apart from the well known lines of
radium B at $241,9$, $295,2$ and $352,0$ keV a pronounced excess

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SOV/48-22-7-17/26

New Data on the Relative Intensities of the γ -Lines of Ra in Equilibrium With Its Decay Products

1848,5 keV-line an electron excess with a maximum near 1860 keV was discovered. This excess can be explained by the presence of the 1862,3 keV line (Ref 1). The existence of the 1869 keV line (Ref 1) was proved. An excess of recoil electrons exists in the range of 2016,7 and 2090 keV. Their intensity is smaller by about a factor of 3 than that given in reference 1.

For the purpose of determining the relative intensities the area of each component, reduced to equal Hq intervals, was measured. Then corrections were added. The corrections took into account the efficiency of the counters for electrons of different energies, the self-absorption in the source, the wall absorption, and the spectral sensitivity of the apparatus. It was assumed that the intensity of the lines is proportional to these areas. The results show a good agreement. The intensity of the individual strong lines agree within limits of 7 - 10 %. The **Graduate students** E. A. Fredovskiy (LPI) and N. A. **Voynova** (LGU) assisted in the measurements. There are 4 figures, 1 table, and 6 ref-

0.1 3/4

SOV/48-22-7-17/26

New Data on the Relative Intensities of the γ -Lines of Ra in Equilibrium
with Its Decay Products

ferences, 2 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii
im. D. I. Mendeleyeva
(All Union Scientific Research Institute of Metrology imeni
D. I. Mendeleyev)
Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR
(Radium Institute imeni V. G. Khlopin, AS USSR)

Card 4/4

24(5), 24(7)

AUTHORS:

Dubel'kov, B. S., Yemel'yanov, P. A., SOV/48-21-7-10/31
Podkopayev, Yu. N., Podyaabits, V. N., Uchevatits, I. P.,
Shadopalova, J. A.

TITLE:

On the Hard Part of the γ -Spectrum of Radium Found in the
Equilibrium with the Products of the Decay ($W=5100-5600$ keV)
(O shetkoy chasti γ -spektra radiya, nachod'yashchegosya v
ravnovesii s produktami raspada ($W=5100-5600$ keV))

PERIODICAL:

Izvestiya Akademi nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 7, pp 832-834 (USSR)

ABSTRACT:

At the beginning, the transition $RaC \rightarrow RaC'$ and further
the transition $RaC' \rightarrow RaD$ are indicated to the first
cause of the hard γ -radiation, and figure 1 shows a branching
of the radioactive series of the radium family. The energy
levels of these transitions are investigated, and a number of
previous papers is indicated. In the present paper, a
 γ -spectrum of the $SiPI$ LCU was used for investigating the
hard γ -rays. Two series of measurements were carried out. In
the first series, the range of from 5,070 keV to 5,603 keV
was investigated. The results of these measurements are shown
in diagram (Fig 2). In the second series, the range of from

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5,070 keV to 5,603 keV was investigated. The results of these measurements are shown in diagram (Fig 3). The transition with $W=5,070$ keV was practically not secured in the first series, and was absolutely not secured in the second series. The diagram shows the first series of lines with the energy of 5,100-5,600 keV. The second diagram also shows an increase of the electron output in the range of 5,500-5,800 keV, and this is attributed to the transition $RaC' \rightarrow RaD$ according to figure 1. The transitions $RaC \rightarrow RaC'$ and $RaC' \rightarrow RaD$ are indicated for the γ -lines with the energy of about 5,200 keV, and finally it is ascertained that lines with an energy of more than 5,900 keV could not be detected. The authors thank O. V. Chubinskiy for the supply of experimental data. There are 3 figures and 9 references, 5 of which are Soviet.

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ABSTRACT:

Yaduychnyye izmereniya deystel'noy imeni
D. I. Mendeleeva (All-Union Scientific Research Institute
of Metrology, Prof. P. I. Mendeleev), Leningradskiy gos. uni-
versitet, A. A. Zhdanova (Leningrad State University, Insti-
tut A. A. Zhdanov)

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21 (8)

AUTHORS: Dzhelepov, B. S., Uchevatkin, I. F., SOV/56-37-3-44/62
Shestopalova, S. A.

TITLE: $0^+ - 0^+$ -Transition in the Decay $\text{Pr}^{140} \rightarrow \text{Ce}^{140}$

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 37, Nr 3(9), pp 857 - 859 (USSR)

ABSTRACT: In an earlier paper it has already been stated that the Ce^{140} -nucleus has an excited state of the type 0^+ with an excitation energy of 1902 kev. This state occurs in La^{140} -decay. The ground state and the excited states of Ce^{140} may occur also in electron capture and in the β^+ -decay of Pr^{140} . Figure 1 shows the scheme of the possible transitions to the lower excited states of Ce^{140} . In the present "Letter to the Editor" the authors endeavor to show that the 1902 kev level of Ce^{140} is not excited by the decay of Pr^{140} ; as the ground state of Pr^{140} is of the type 1^+ , it may be expected that this state occurs in the case of permitted β -decays and in electron cap-

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$O^+ - O^+$ -Transition in the Decay $Pr^{140} \rightarrow Ce^{140}$

SOV/56-37-3-44/62

ture. For this purpose, an $Nd^{140} + Pr^{140}$ preparation in equilibrium was investigated in a β -spectrometer with triple focusing. The counters were filled with argon + 15% alcohol (pressure 100 torr). Figure 2a shows the K conversion line (1902 kev) and figure 2b - the Curie diagram for the end of the β -spectrum of Pr^{140} . The results obtained are supplemented by those obtained by other authors (Refs 4-7). The ratio e^-/β^+ was determined as being 0.2%. The number of $e^-(1902)$ is determined in consideration of the fact that K- and L-captures in the case of the permitted decay to the ground state amount to about 47%. Herefrom the number of conversion electrons is determined as amounting to 0.1% per decay. Thus, the $Ce^{140}(O^+)$ 1902 kev level is far more frequently excited in the decay of Pr^{140} than in the decay of La^{140} (according to references 1,7: 0.013%). Actually, the Ce^{140} 1902 kev level occurs both in e^- -capture and in the β^+ -decay of Pr^{140} . $ft = 2:10^6$ is found

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• $O^+ - C^+$ -Transition in the Decay $Pr^{140} \rightarrow Ce^{140}$ SOV/56-37-3-44/62

for permitted transitions. There are 2 figures and 7 references,
6 of which are Soviet.

ASSOCIATION: Vsesoyuznyy institut metrologii (All-Union Metrology Institute)

SUBMITTED: May 16, 1959

Card 3/3

DZHELEPOV, B.S.; UCHEVATKIN, I.F.; SHESTOPALOVA, S.A.

Spectrum of conversion electrons of neutron deficient isotopes of
lutetium in the energy region of 1000-3500 kev. Izv. AN SSSR Ser.
fiz. 24 no.7:802-806 J1 '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni
D.I. Mendeleeva.
(Lutecium--Isotopes)

SHESTOPALOVA, S.A.

S/048/60/024/007/032/032/XX
B104/3201

AUTHORS: Vitman, V. D., Dzhelepov, B. S., Pavlov, A. A., Semenov, S. V., and Shestopalova, S. A.

TITLE: Determination of the ratio of the number of quanta of K- and L emission of some neutron-deficient isotopes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 24, no. 7, 1960, 934-938

TEXT: The present paper has been read at the 10th All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. A proportional counter served to measure the relative intensities of the K- and L emissions of Ho^{160} , Dy^{159} , Nd^{140} , Pr^{140} , and Sm^{145} . These isotopes were obtained by the chromatographic separation of rare earths, the latter being chemically separated from a tantalum target irradiated with 660-Mev protons on the synchrocyclotron of the OIYaI. The experimental system was calibrated on Zn^{65} , Se^{75} , In^{114} , Cs^{137} , and Sm^{145} , the relative half-widths of the lines being 15-12%. The ratio of the numbers of L- and K emission quanta is put

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Determination of the ratio of ...

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3104/3201

proportional to the ratio of the area of the lines measured:
 $N_L/N_K = kS_L/S_K$. (N_L and N_K are the numbers of quanta, S_L and S_K the areas bounded by the line contours). The S_K and S_L were found from the lines determined experimentally after deduction of the background. The latter was determined by means of a filter made of 0.8 mm cadmium, 0.5 mm copper, and 0.5 mm aluminum. Quanta up to 60 kev were completely absorbed by this filter, quanta with more than 200 kev were allowed to pass. Results are collected in Table 1. With the aid of these values, the ratios λ_L/λ_K between the capture probabilities of the electrons from L- and K shells were calculated. These values are given in Table 2. It is noted, however, that they exhibit a considerable error. There are 1 figure, 2 tables, and 8 references; 4 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii
 im. D. I. Mendeleyeva (All-Union Scientific Research Institute
 of Metrology imeni D. I. Mendeleyev) ✓

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27893

S/048/61/025/010/003/003
B104/B112

21.6000
AUTHOR:

Shestopalova, S. A.

TITLE:

Beta spectrometer with twofold focusing through an angle of $\pi\sqrt{2}$

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 25, no. 10, 1961, 1302 - 1304

TEXT: In the spectrometer described by the author, the electron source is located above the plane of symmetry of the magnetic field. The aim is to eliminate or weaken scattering of electrons and background by means of twofold focusing. The focuses are located alternately above and below the plane of symmetry. The first slit of the spectrometer is bent as the first focus. The forms of the outer edges of the slit and of the three diaphragms were calculated by M. A. Listengarten from the kinetic equation of electrons with an accuracy up to members of third order. In the first focus one Geiger counter, in the second one two Geiger counters are located. Threefold coincidences are counted. The equilibrium orbit of electrons is 140 mm, the height of the source is 15 mm, the center of the

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